

SECTION A**QUESTION 1**

1.1 Multiple choice

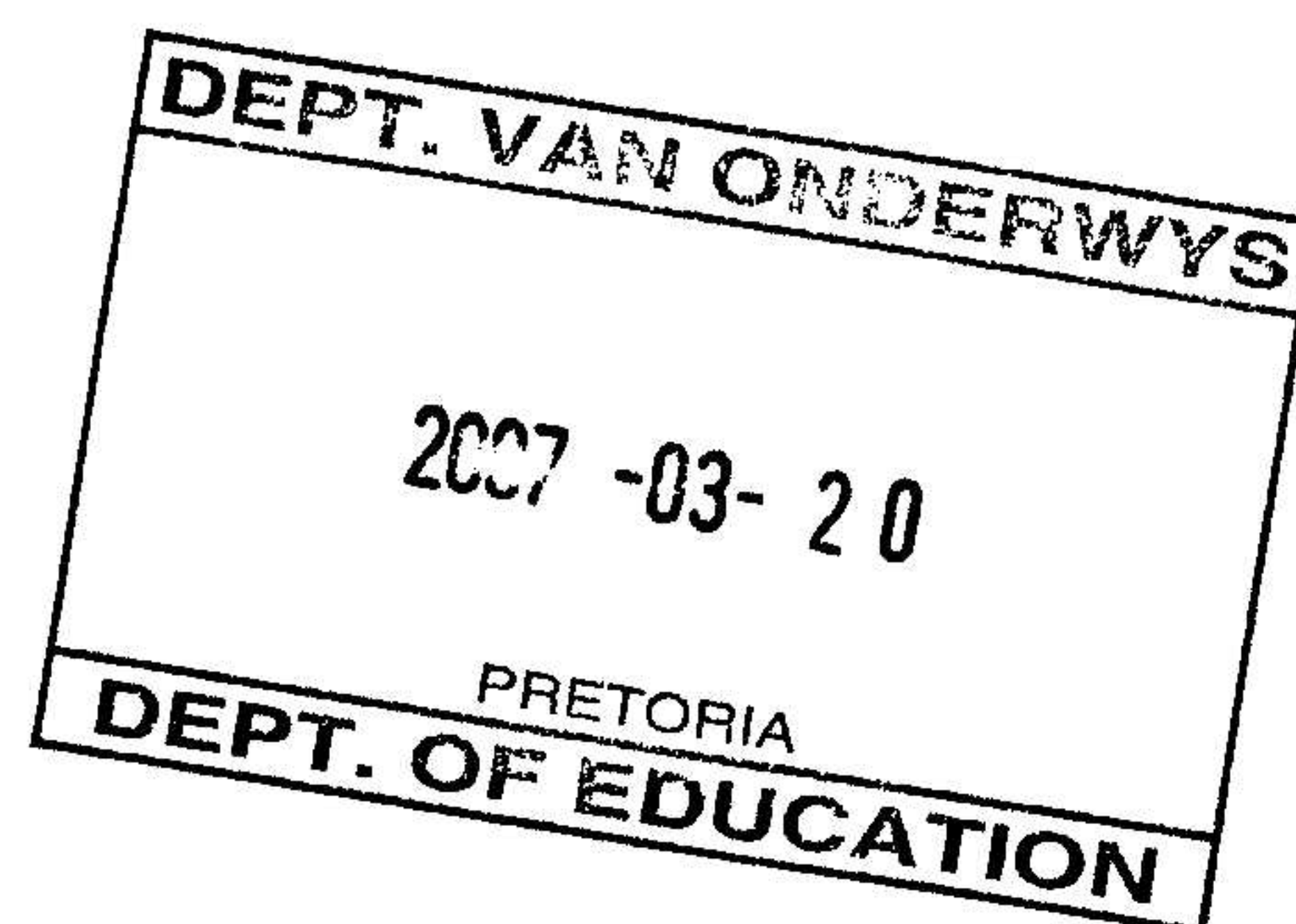
- 1.1.1 C✓✓ (2)
- 1.1.2 D✓✓ (2)
- 1.1.3 C✓✓ (2)
- 1.1.4 C✓✓ (2)
- 1.1.5 B✓✓ (2)
- 1.1.6 A✓✓ (2)
- 1.1.7 B✓✓ (2)
- 1.1.8 B✓✓ (2)
- 1.1.9 D✓✓ (2)
- 1.1.10 A✓✓ (2)

[20]

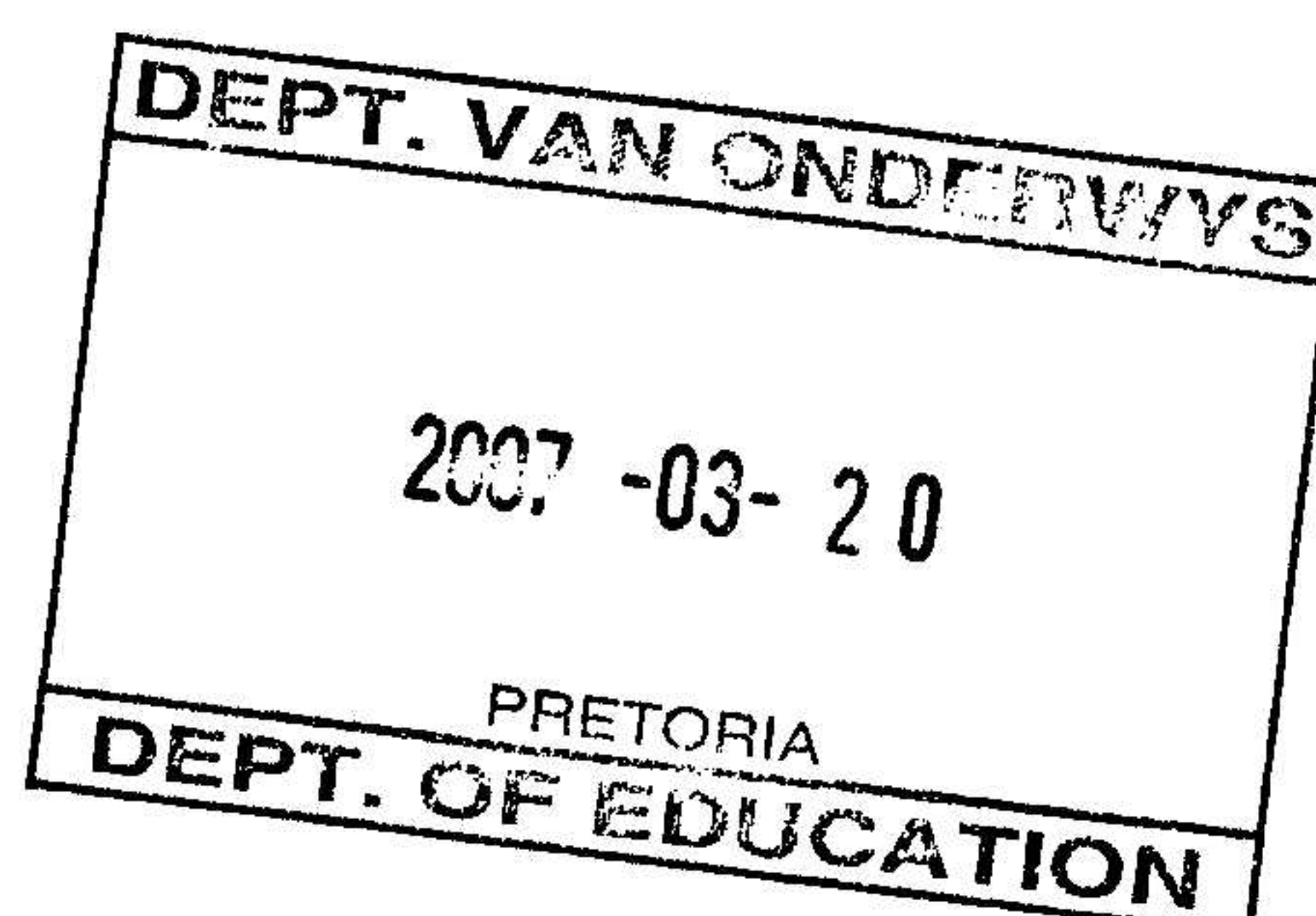
1.2 Correct terms

- 1.2.1 Decision making✓✓ (2)
- 1.2.2 Plant succession✓✓ (2)
- 1.2.3 Peristalsis✓✓ (2)
- 1.2.4 Pancreas✓✓ (2)
- 1.2.5 Marketing/advertising✓✓ (2)

[10]



- 1.3 Replacement of word(s)
- 1.3.1 Proteins✓ ✓ (2)
- 1.3.2 Oestrus✓ ✓ (2)
- 1.3.3 Urethra✓ ✓ (2)
- 1.3.4 Climate✓ ✓ (2)
- 1.3.5 Free marketing✓ ✓ (2)
- [10]
- 1.4 Matching the columns
- 1.4.1 D✓ ✓ (2)
- 1.4.2 H✓ ✓ (2)
- 1.4.3 C✓ ✓ (2)
- 1.4.4 A✓ ✓ (2)
- 1.4.5 B✓ ✓ (2)
- [10]
- TOTAL SECTION A: 50**



SECTION B

QUESTION 2: ANIMAL NUTRITION

2.1 Digestive tract of the pig

- 2.1.1 (a) C✓ (1)
Gizzard/Ventriculus/Glandular stomach/Muscular stomach✓ (1)
(1)
(b) A✓ (1)
Crop✓ (1)
(c) F✓ (1)
Small intestine✓ (1)
(d) B✓ (1)
Proventriculus/Glandular stomach✓

2.1.2 Reason: Secretion of gastric juice which contains the following✓ (1)

Enzyme	End product
Pepsin✓	Proteoses/peptones✓
Renin✓	Casein✓
Lipase✓	Fatty acids/glycerol✓

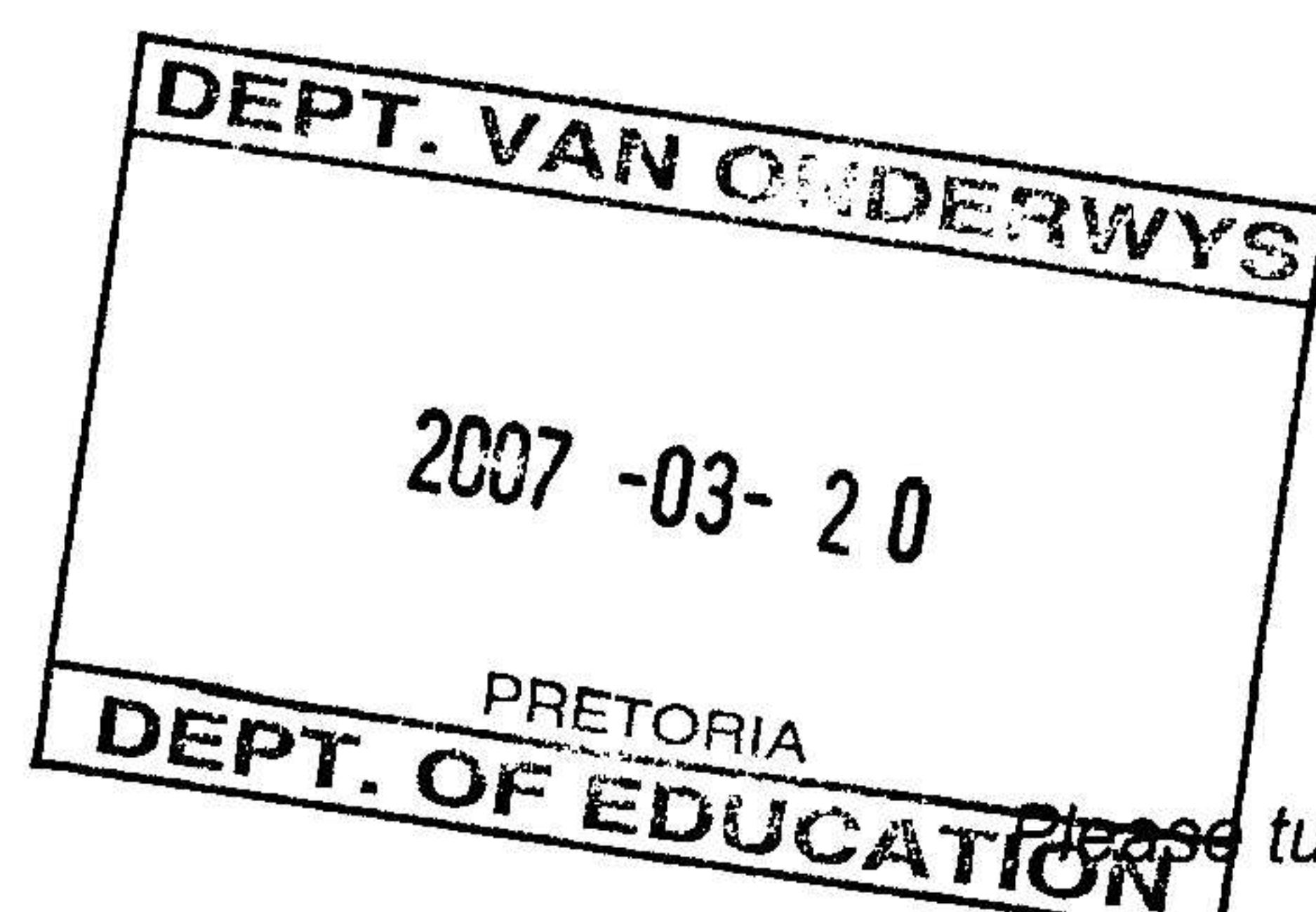
(6)

- 2.2 sufficient mineral nutrients✓
require macro- and micro-elements for growth and reproduction✓
easily digestible carbohydrates✓
starch and sugars are required for energy purposes✓
sufficient nitrogen
required for the synthesis of microbial protein✓ (6)

2.3 Digestibility of feeds:

- 2.3.1 Amount of dry matter absorbed
= $(88\% \times 10\text{kg}) - (77\% \times 3.5\text{kg}) / 100$ ✓
= $(880 - 269.5) / 100$ ✓
= 6.1kg✓

Digestibility co-efficient
= $\frac{6.1\text{kg}}{8.8\text{kg}} \times 100$ ✓

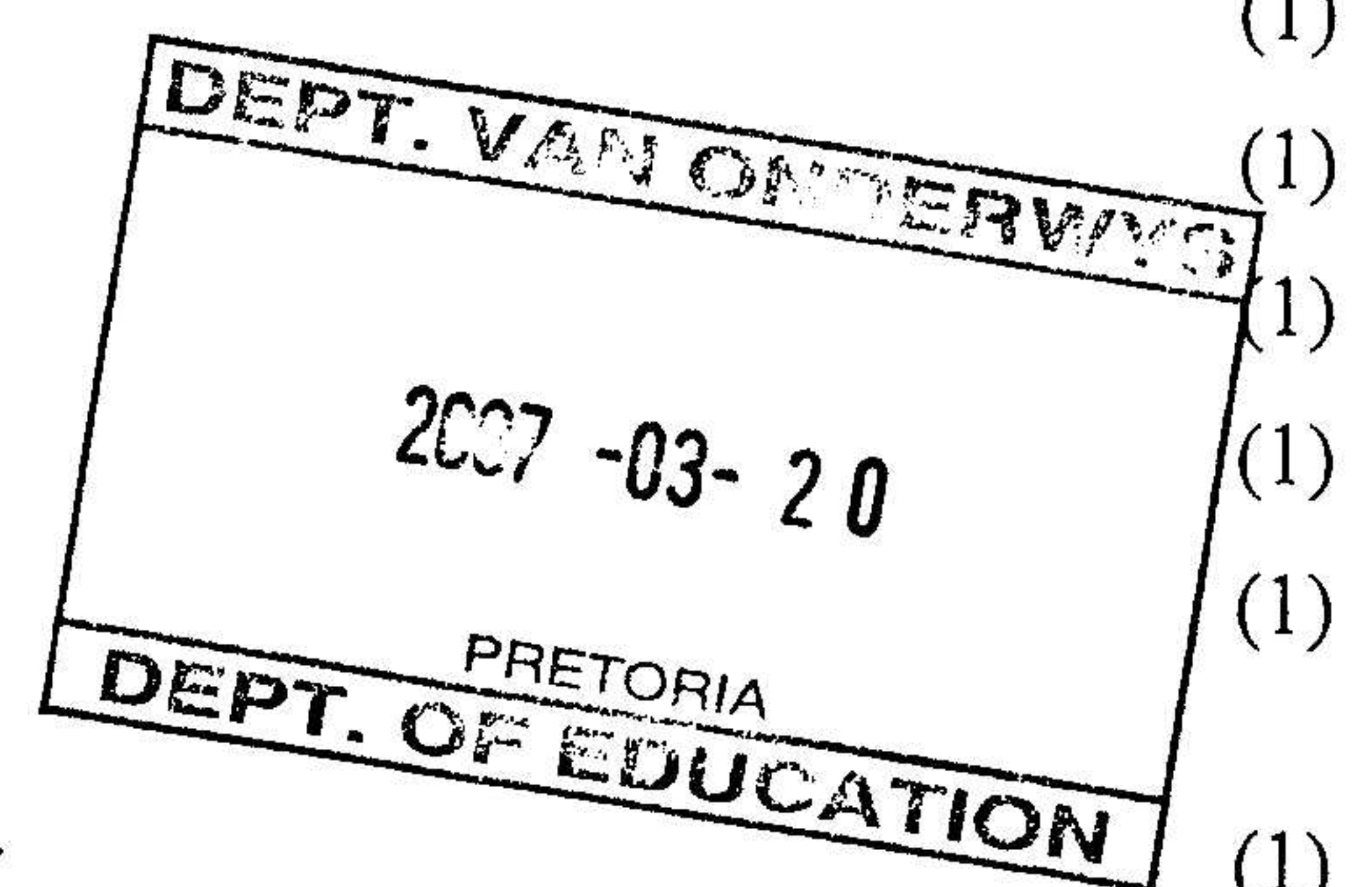


- 2.3.2 the animal is a good converter of food✓
as the digestibility co-efficient is above 50%✓ (2)
- 2.4 Feedstuffs:
- 2.4.1 Oats straw/silage/yellow maize meal✓ (any 1) (1)
- 2.4.2 Salt✓ (1)
- 2.4.3 Urea✓ (1)
- 2.4.4 Fishmeal/bone meal✓ (any 1) (1)
- 2.4.5 Lucerne✓ (1)
- 2.5 Feeding programme terms:
- 2.5.1 Balanced ration :
refers to the quantity of feed which provides all nutrients✓
required by the animal per day✓
in the correct form, ratio and quantity✓ (3)
- 2.5.2 Dry roughage:
feed which per unit of mass contains a large volume✓
and small percentage of digestible nutrients✓
and a large amount of crude fibre✓ (3)

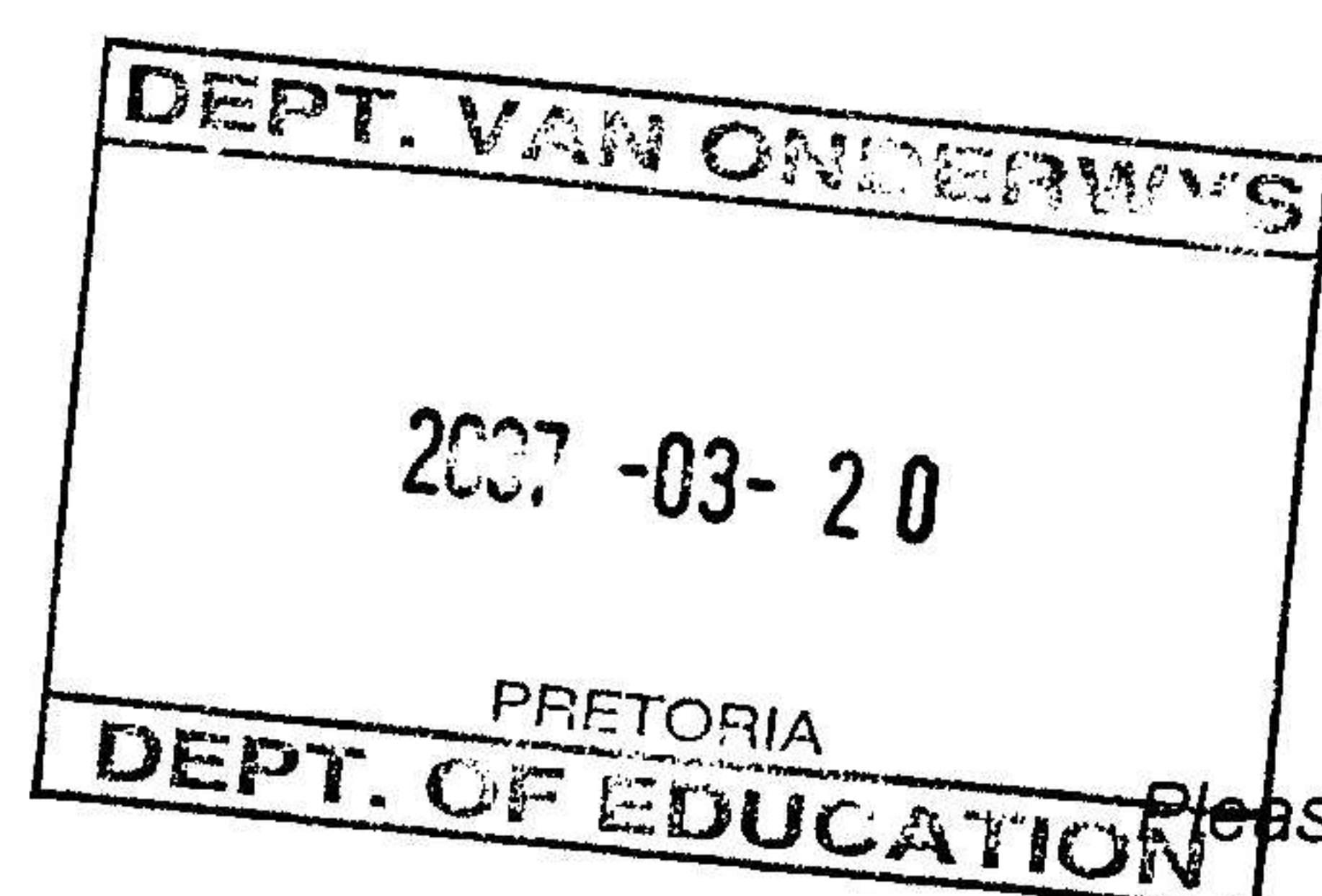
40

QUESTION 3 : ANIMAL REPRODUCTION

- 3.1 Reproductive organs of the cow
- 3.1.1 A Primary spermatocyte (2n)✓ (1)
B Secondary spermatocyte (n)✓ (1)
C Second meiotic division✓ (1)
D Spermatids (n)✓ (1)
E Sperm✓ (1)
- 3.1.2 Walls of seminal tubes/seminiferous tubes✓ (1)



- 3.1.3 Epididymis✓ (1)
- 3.1.4 No true to type animals/the offspring would not resemble the parents✓ ✓ (2)
- 3.2 Artificial insemination:
- 3.2.1 prevents disease transmitted during mating✓
reduces occurrence of sexually transmitted diseases✓
rapid genetic improvement of the herd✓
most economical breeding method✓
semen from different bulls may be used✓
increases commercial value of the herd✓
higher calving percentage✓
semen of overseas bulls may be used✓
seed can be frozen for several years✓
accurate method of progeny testing (Any 5) (5)
- 3.2.2 opaque✓
milky✓
sticky✓
slimy✓
80% movable✓
85% alive✓
less than 20% abnormal sperm✓ (Any 4) (4)
- 3.3 Breeding methods:
- 3.3.1 Cc✓ ✓ (2)
- 3.3.2 Good conformation/good outward appearance✓ ✓ (2)
- 3.3.3 Upgrading✓ ✓ (2)



- 3.3.4 most economical method of improving a herd✓
requires no specialised knowledge✓
possibility of deficient progeny is small✓
new breed is gradually imported into a new environment✓
few adaptation problems ✓ (Any 4) (4)

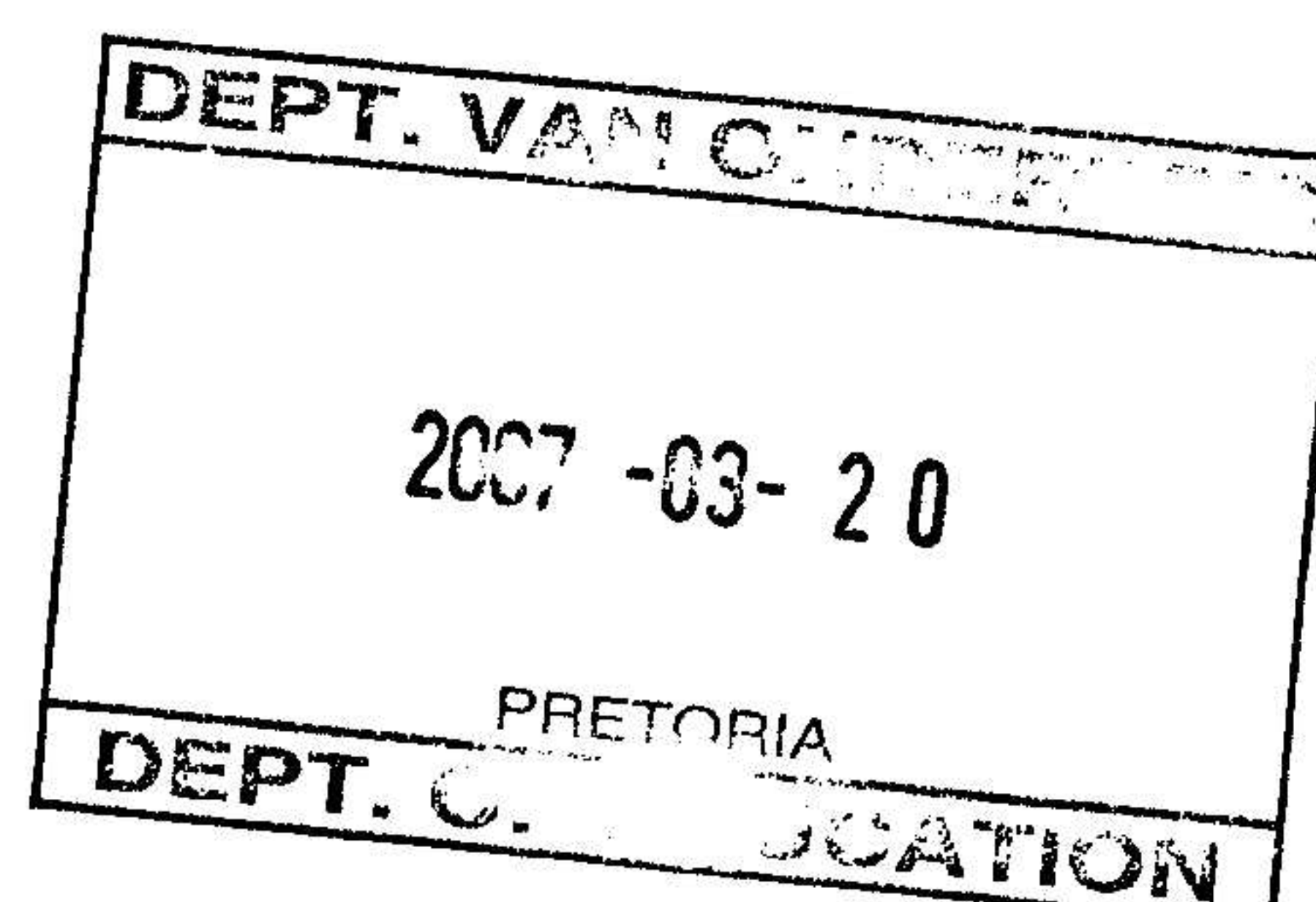
3.4 Parturition and milk production:

- 3.4.1 loss of appetite✓
isolate herself from the herd✓
nesting behaviour✓
restlessness✓
signs of discomfort✓
urinates and defaecates frequently✓
leaking milk✓
mucus strings are visible✓ (Any 5) (5)

- 3.4.2 triggered by stimulation of sensory nerves in the teats✓
having the teats massaged, washing of udder, milking process, familiar milking sounds✓
the hormone oxytocin is released from the pituitary gland during this process✓
transported via the blood to the udder✓
stimulates the myo-epithelial cells and the milk is pushed down into the ducts✓
from there into the teats✓
fear or excitement results in the release of adrenalin which inhibits milk ejection✓ (Any 5) (5)

- 3.4.3 the nutrients from the feed are used for both milk production✓
and growth of the foetus✓ (2)

40



QUESTION 4 :OPTIMAL RESOURCE UTILISATION

4.1 Cultivation:

	Bare cultivation	Mulch cultivation
4.1.1 Aeration	Heavy implements cause compaction/plough bank/plough pan✓ Macro pores destroyed✓ (Any 1)	Very good aeration because there is no compaction✓ Macro pores not destroyed✓ (Any 1)
4.1.2 Compaction	Compacted layer/plough bank/plough pan✓ Due to use of heavy machinery✓ (Any 1)	Very little or no compaction✓ Little pressure or smearing effect✓ (Any 1)
4.1.3 Soil structure	Deteriorates ✓ Pulverisation of soil✓ Destruction of soil structure✓ (Any 1)	Improves✓

(2)

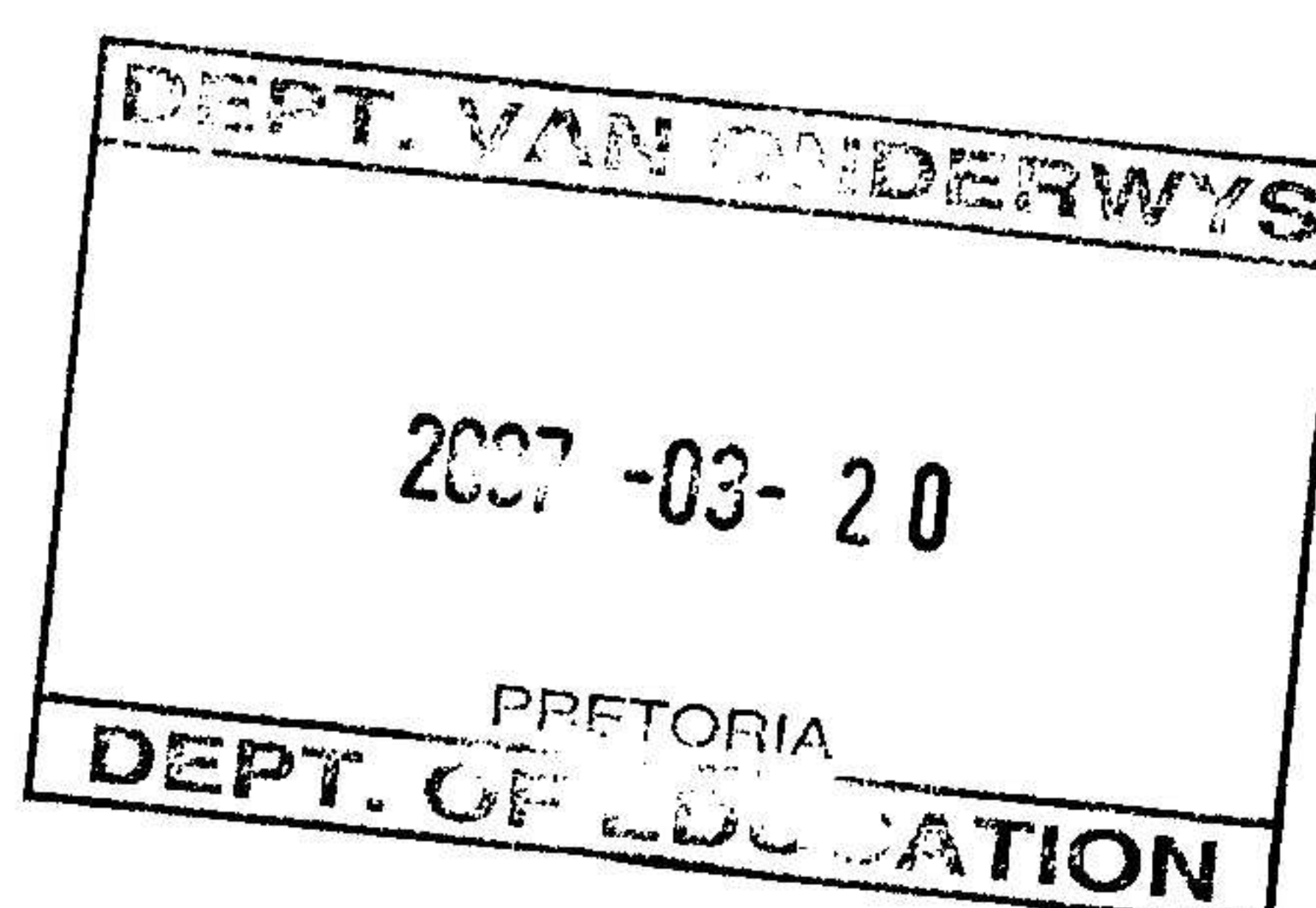
(2)

(2)

- 4.2
- helps combat pests and diseases✓
 - helps to maintain the organic fraction in the soil✓
 - prevents one-sided utilisation of plant nutrients✓
 - prevents leaching out of plant nutrients✓
 - better labour distribution✓
 - two or more crops can be produced✓
 - risk of crop failure is spread✓
 - it decreases slack periods on the farm✓
 - improves soil conservation practice✓

(Any 5)

(5)



4.3 Veld types and management:

- 4.3.1 Sourveld
the grasses are palatable and nutritious for animals when the plants are young✓
but loses its palatability and nutritional value as it matures✓ (2)

Sweetveld
the grasses are palatable and nutritious to animals✓
throughout all its stages of growth✓ (2)

- 4.3.2 Selective grazing
animals are grazing normally only palatable species of grasses✓
which results in overgrazing of that particular species✓ (2)

Zero grazing
animals are kept in one place and fed with fodder which has been cut✓
no grazing takes place at all✓ (2)

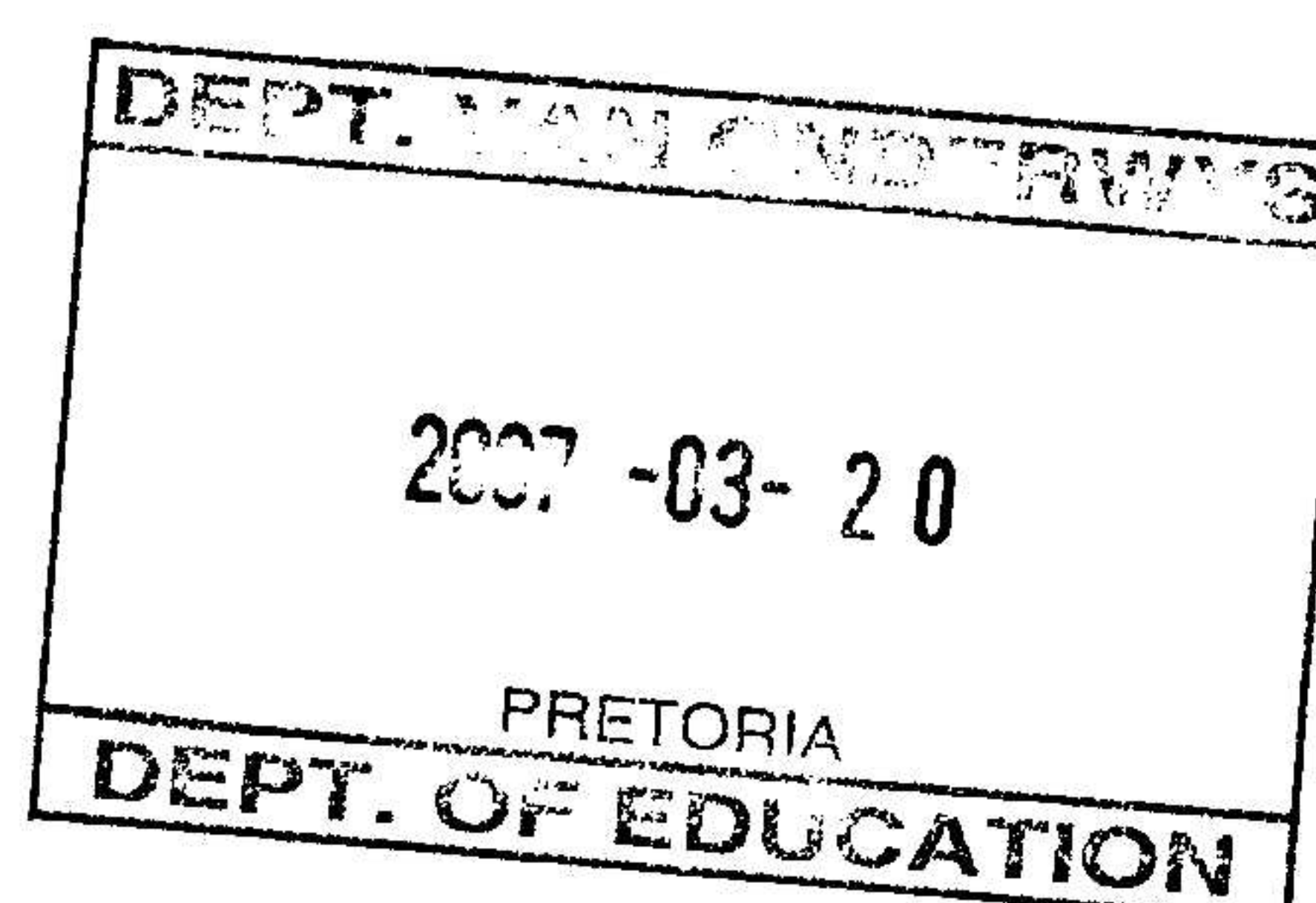
4.4. Veld management:

- 4.4.1 Number of camps:
the greater the number of camps available✓
the longer the rest period would be✓ (2)

- 4.4.2 Condition of veld:
the more trampled the veld/overgrazed/heavily grazed ✓
the longer the rest period✓ (2)

- 4.4.3 Rainfall:
the more the rainfall✓
the shorter the resting period✓ (2)

- 4.5 depth of different horizons✓
soil colour✓
mottle✓
soil texture✓
soil structure✓
concretions✓
consistency✓



(Any 5) (5)
Please turn over

- 4.6
- on highly permeable soil✓
 - on shallow soil with low water capacity✓
 - on soil where uniform application of water is essential✓
 - on steep slopes and erosion is a real danger✓
 - when the stream of water is too small for flood irrigation✓
 - on a land with different infiltration rates ✓
 - on uneven land✓

(Any 5) (5)

35

QUESTION 5 : AGRICULTURAL ECONOMICS

5.1 Case study

- 5.1.1
- provides agricultural requirements at a discounted price/cheap price✓
 - provides certain services e.g. ploughing and spraying of orchards✓
 - provides agricultural insurance✓
 - provides selling of products in the most profitable way✓
 - products are standardised and graded✓
 - due to bulk handling marketing costs per unit decreases✓

(Any 5) (5)

- 5.1.2
- (a) employed during the peak period✓
for repetitive tasks✓
e.g. fruit harvesting✓

(3)

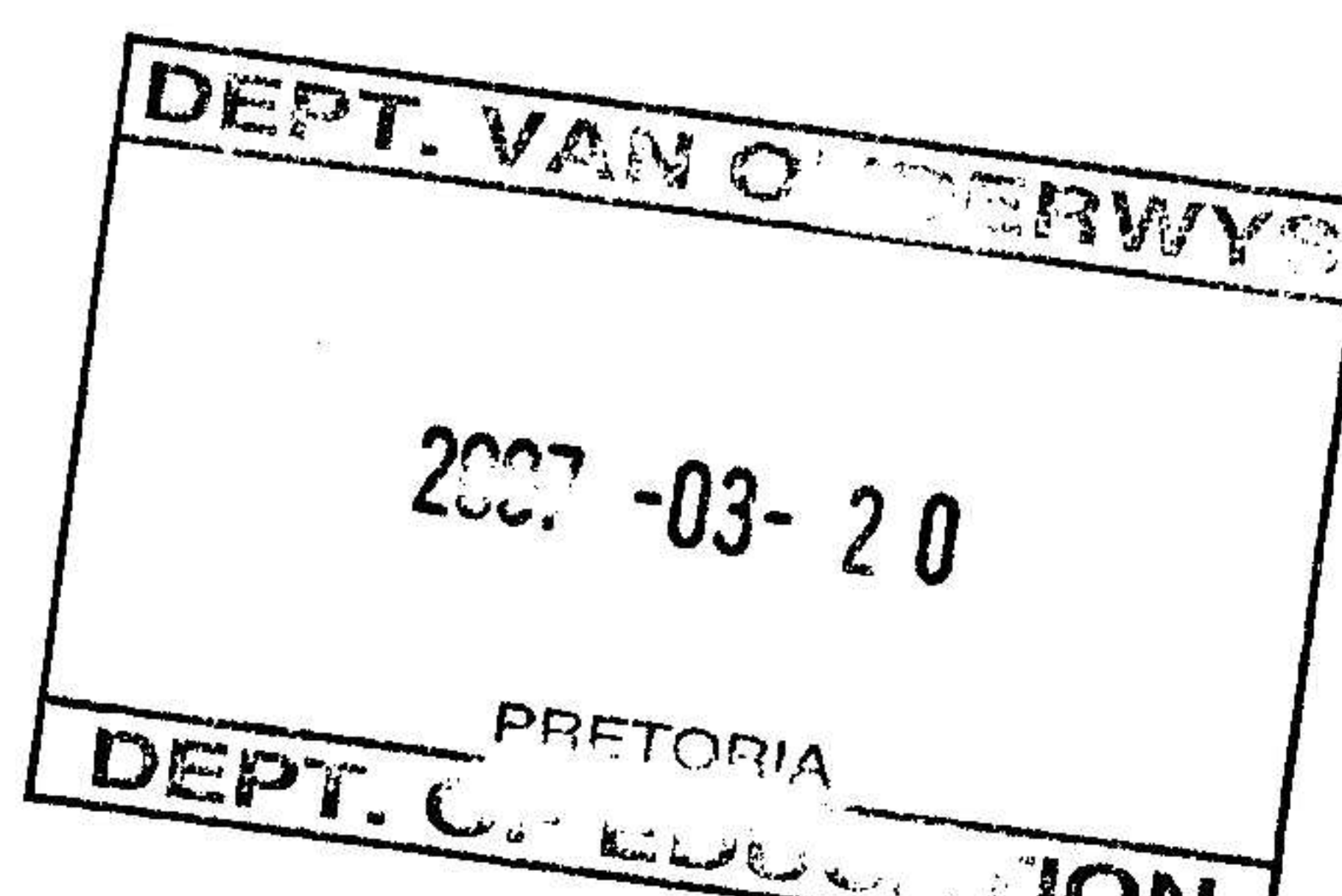
- (b) employed on a temporary basis✓
for non-repetitive tasks✓
e.g. erecting security fencing✓

(3)

5.2 Supply and demand:

- 5.2.1 Demand refers to:
quantity of the product✓
which can be purchased at a given time by consumers✓
at all possible alternative prices✓

(3)



Supply refers to:

- the quantity of the product✓
- produced or offered to the purchaser/buyer✓
- at varying prices✓

(3)

5.2.2

- price of the product✓
- tastes and preferences of consumers✓
- number of consumers✓
- real income of consumers✓
- prices of competing and complimentary products✓
- range of products available to the consumer✓
- usefulness of the product✓

(Any 5)

(5)

5.2.3

- water supply/irrigation✓
- consolidation of uneconomic farm units✓
- adapting production systems to scientific methods✓

(3)

5.3

Soil as a production factor:

5.3.1

- yield/production increases per production factor added✓
- up to maximum potential of the soil✓
- after which further inputs will not increase yield✓

(Any 2)

(2)

5.3.2

- depth✓
- texture✓
- and slope cannot be changed✓
- crops must be adapted to the nature of the soil✓

(Any 2)

(2)

5.4

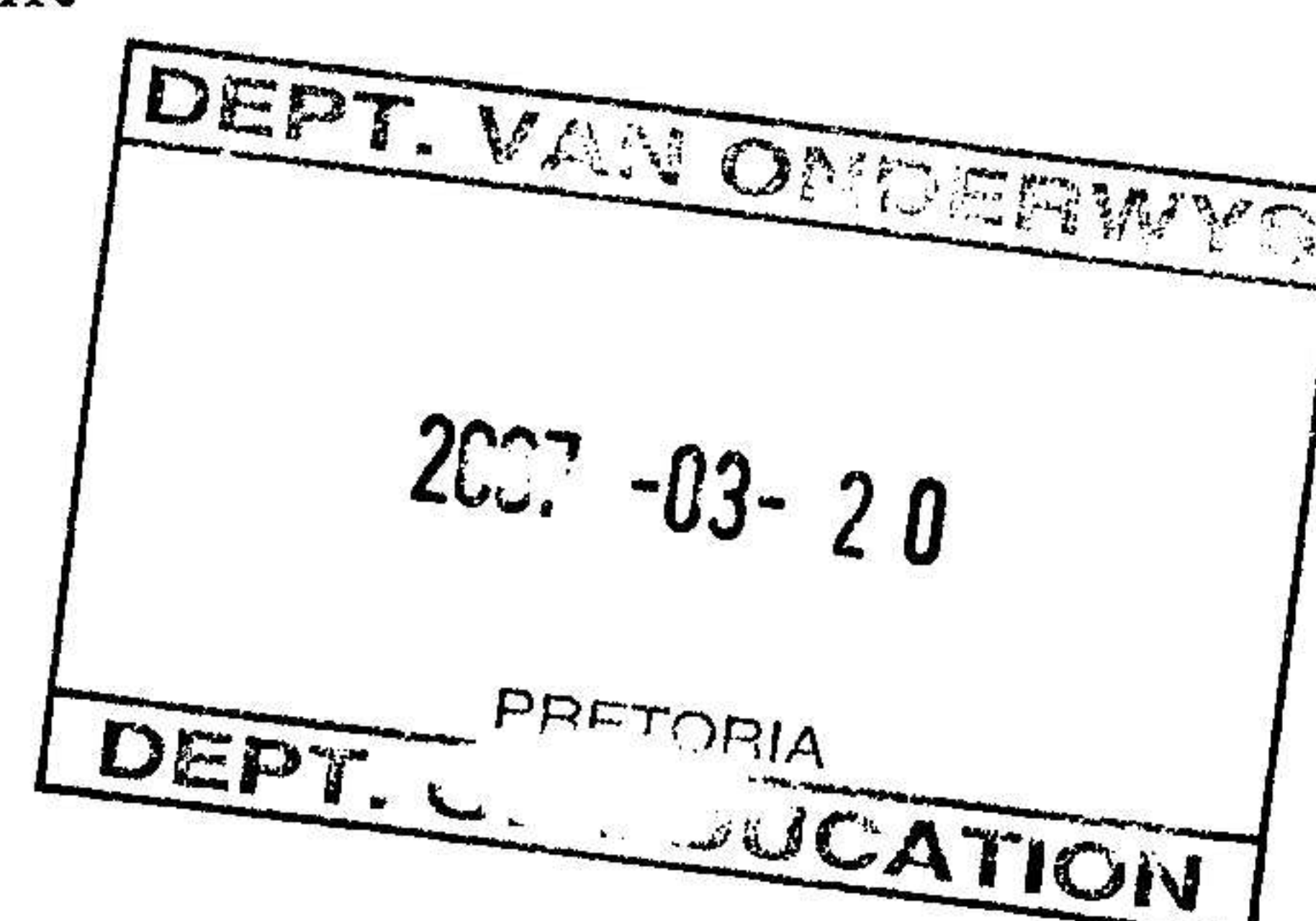
Farm profit:

5.4.1

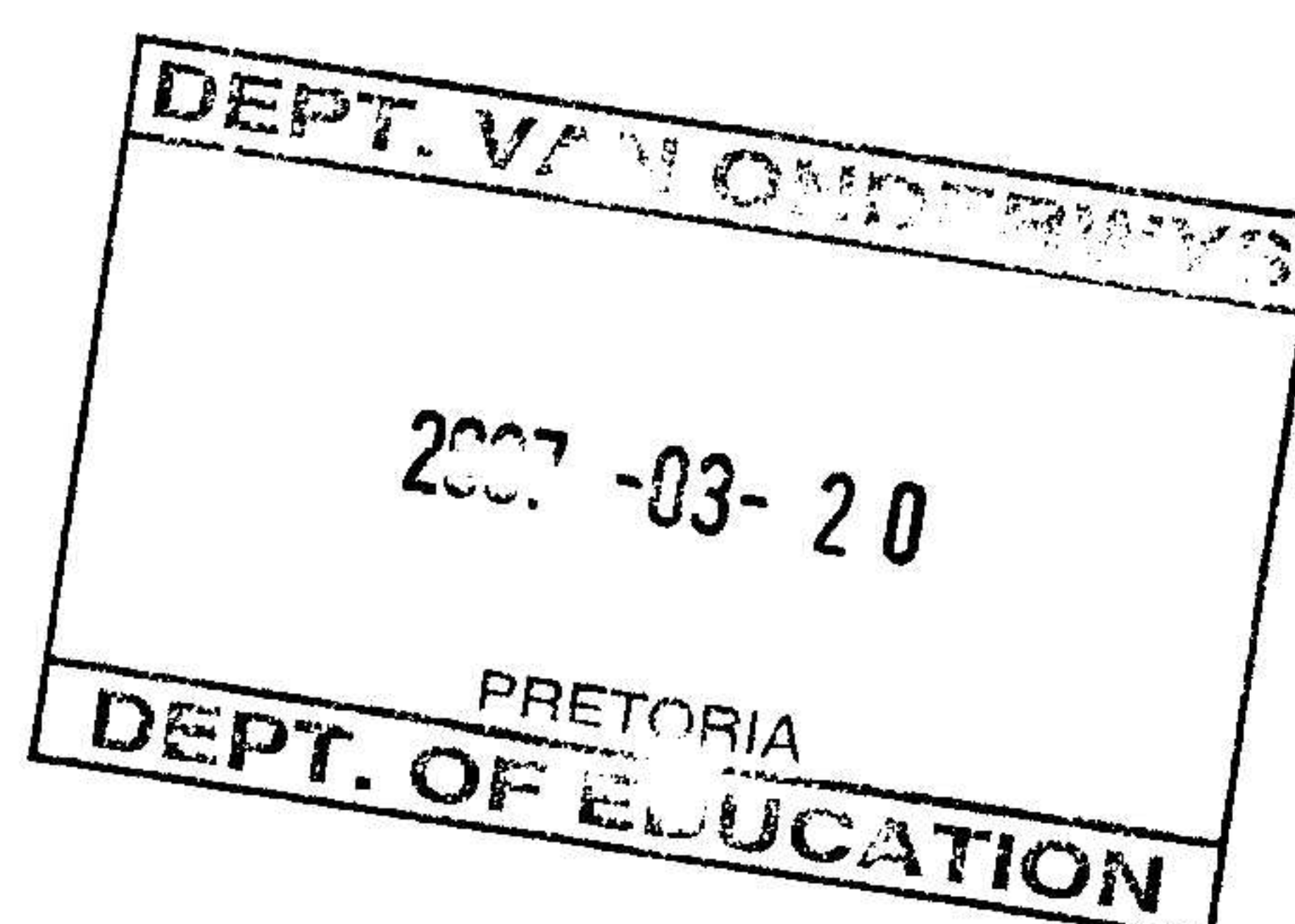
- provide training facilities on farm✓
- organise learnerships/skills programmes for workers✓
- provide skills specialisation✓

(Any 2)

(2)



5.4.3	improve working conditions on farm✓		
	reduce long working hours to acceptable standard✓		
	provide good remuneration for over-time/incentives✓		
	introduce modern mechanisation to increase labour productivity✓		
	increase wages/salaries✓	(Any 2)	(2)
			[35]
		TOTAL SECTION B:	150
		GRAND TOTAL :	200



AFDELING A

VRAAG 1

1.1 Meerkeusige vrae

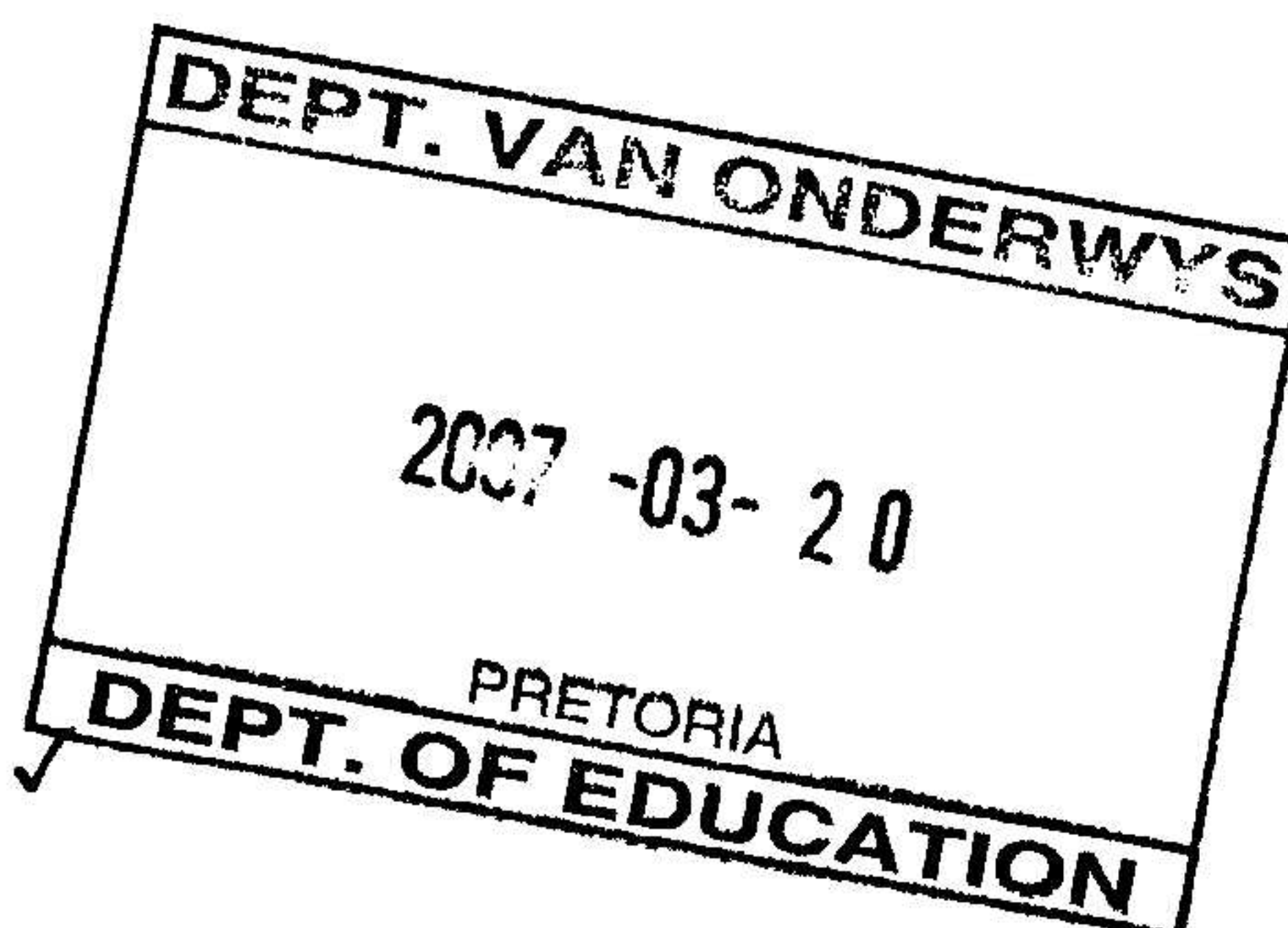
- | | | |
|--------|-----|-----|
| 1.1.1 | C✓✓ | (2) |
| 1.1.2 | D✓✓ | (2) |
| 1.1.3 | C✓✓ | (2) |
| 1.1.4 | C✓✓ | (2) |
| 1.1.5 | B✓✓ | (2) |
| 1.1.6 | A✓✓ | (2) |
| 1.1.7 | B✓✓ | (2) |
| 1.1.8 | B✓✓ | (2) |
| 1.1.9 | D✓✓ | (2) |
| 1.1.10 | A✓✓ | (2) |

[20]

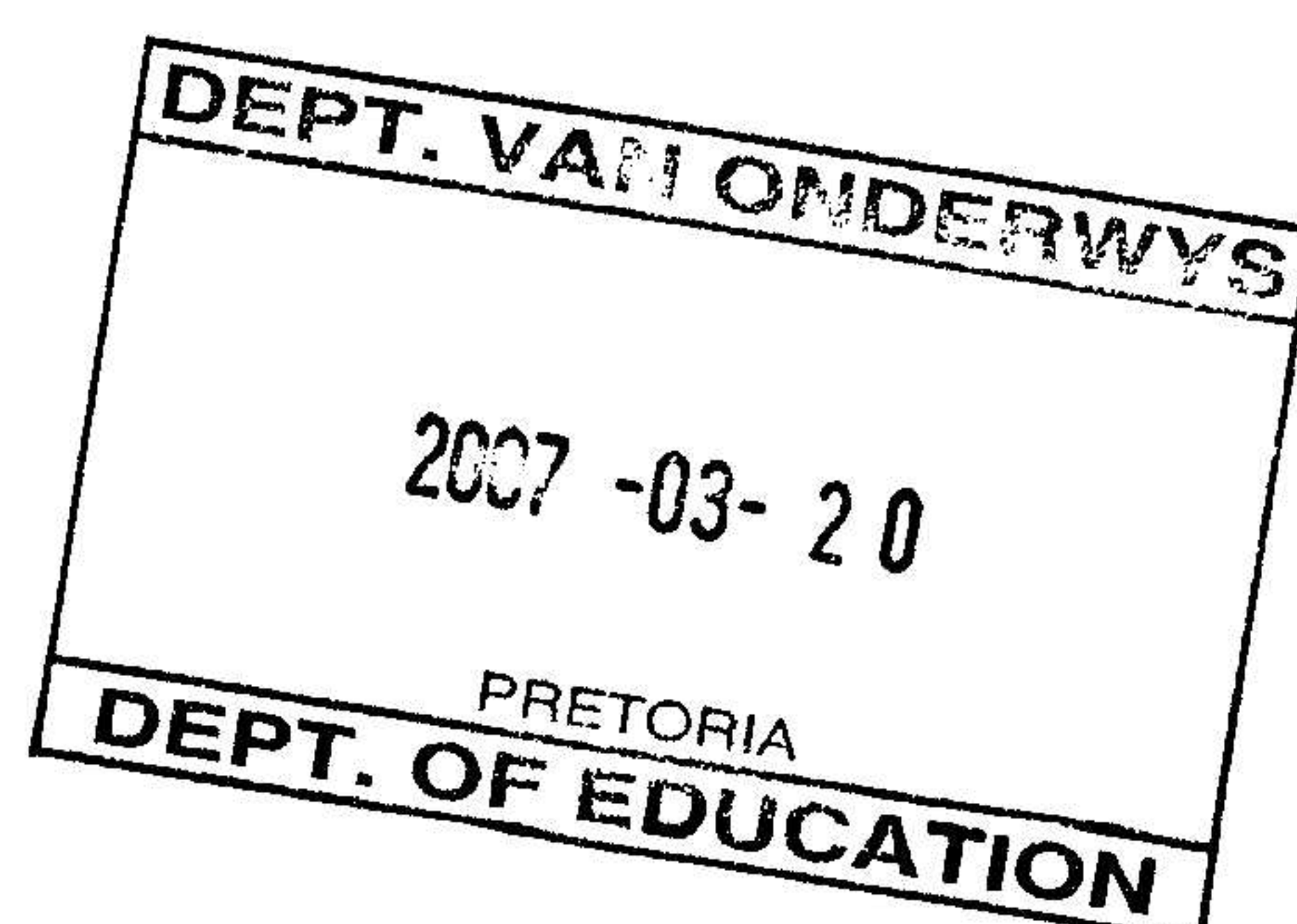
1.2 Korrekte terme

- | | | |
|-------|---------------------------|-----|
| 1.2.1 | Besluitneming✓✓ | (2) |
| 1.2.2 | Plantsuksessie✓✓ | (2) |
| 1.2.3 | Peristalsis✓✓ | (2) |
| 1.2.4 | Pankreas✓✓ | (2) |
| 1.2.5 | Bemarking / Advertering✓✓ | (2) |

[10]



1.3	Vervanging van woord (e)Replacement of word(s)	
1.3.1	Proteïen✓ ✓	(2)
1.3.2	Bronstigheid✓ ✓	(2)
1.3.3	Blaaspyp / Uretra✓ ✓	(2)
1.3.4	Klimaat✓ ✓	(2)
1.3.5	Vrye bemarking✓ ✓	(2)
		[10]
1.4	Pas die kolomme	
1.4.1	D✓ ✓	(2)
1.4.2	H✓ ✓	(2)
1.4.3	C✓ ✓	(2)
1.4.4	A✓ ✓	(2)
1.4.5	B✓ ✓	(2)
		[10]
TOTAAL AFDELING A:		50



AFDELING B

VRAAG 2:DIEREVOEDING

2.1 Spysverteringskanaal van die vark

- 2.1.1 (a) C✓ (1)
Ventrikulus/Spiermaag✓ (1)
(b) A✓ (1)
Krop✓ (1)
(c) F✓ (1)
Dunderm✓ (1)
(d) B✓ (1)
Proventrikulus/Kliermaag✓ (1)

2.1.2 Rede: Afskeiding van maagsap wat die volgende bevat✓ (1)

Ensiem	Eindproduk
Pepsien✓	Proteoses/peptones✓
Rennien✓	Kaseïen✓
Lipase✓	Vetsure/gliserol✓

(6)

2.2 voldoende minerale voedingstowwe✓

benodig makro- en mikro-elemente vir groei en reproduksie✓

maklik verteerbare koolhidrate✓

stysel en suikers word benodig vir energie✓

voldoende stikstof benodig vir die sintese van mikro proteïen✓

(6)

2.3 Verteerbaarheid van voere:

2.3.1 Hoeveelheid droëmateriaal geabsorbeer

$$= (88\% \times 10\text{kg}) - (77\% \times 3.5\text{kg}) / 100✓$$

$$= (880 - 269.5) / 100✓$$

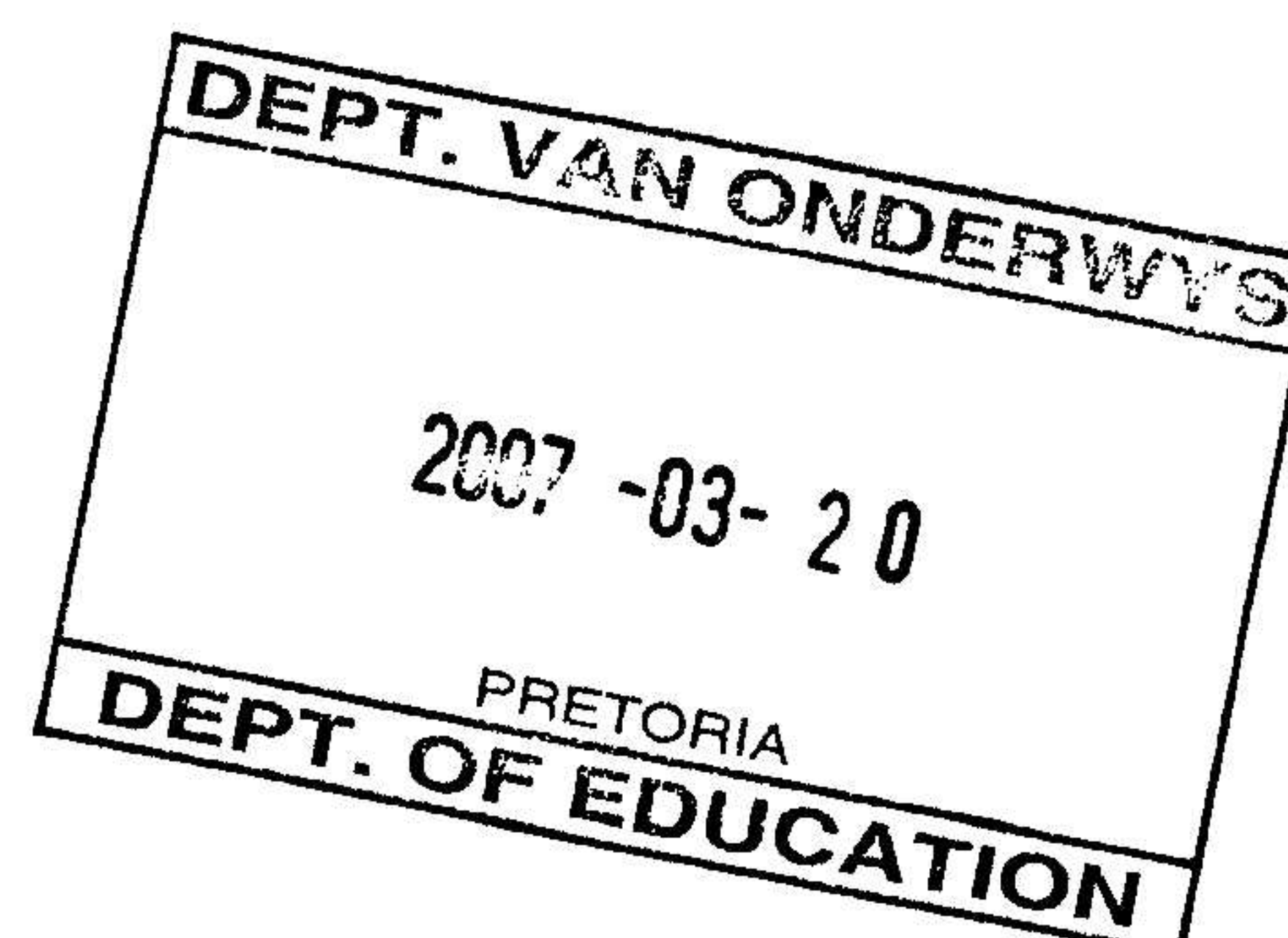
$$= 6.1\text{kg}✓$$

Koëffisiënt van verteerbaarheid

$$= \frac{6.1\text{kg}}{8.8\text{kg}} \times 100✓$$

$$= 69.3\%✓✓$$

$$= 69.3\%✓✓$$



(6)

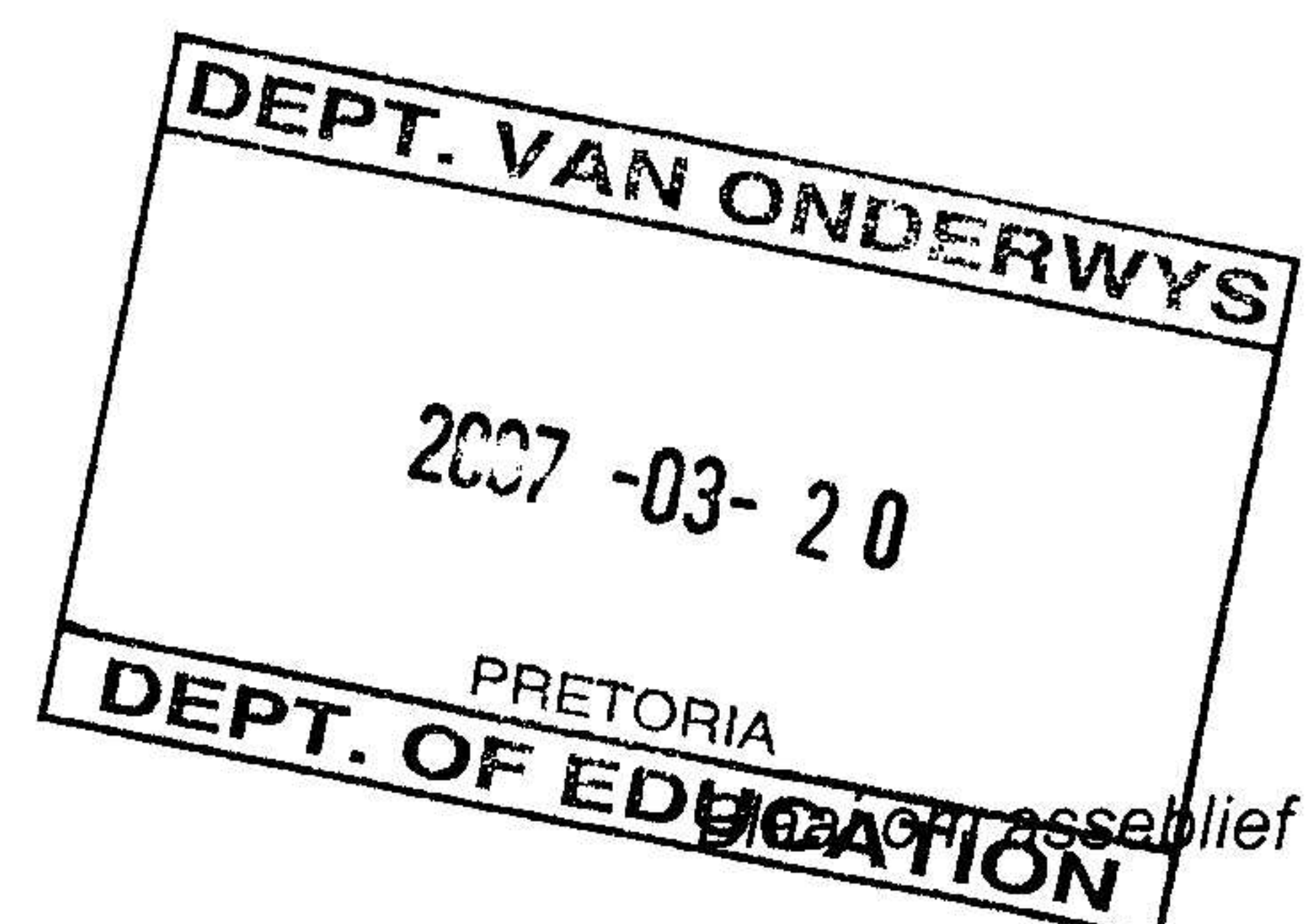
- 2.3.2 die dier het 'n goeie omskakeling van voer✓
aangesien die koefisiënt van verteerbaarheid bo 50% is✓ (2)
- 2.4 Voere:
- 2.4.1 Hawerstrooi/geelmieliemeel✓ (enige 1) (1)
- 2.4.2 Sout✓ (1)
- 2.4.3 Ureum✓ (1)
- 2.4.4 Vismeel/beenmeel✓ (enige 1) (1)
- 2.4.5 Lusern✓ (1)
- 2.5 Terme oor voedingsprogramme:
- 2.5.1 Gebalanseerde rantsoen :
verwys na die hoeveelheid voer wat alle voedingstowwe verskaf✓
wat deur 'n dier per dag benodig word✓
in die korrekte vorm, verhouding en hoeveelheid✓ (3)
- 2.5.2 Droë ruvoer:
voer wat per eenheid massa 'n groot volume beslaan✓
'n klein persentasie verteerbare voedingstowwe bevat✓
en 'n groot hoeveelheid ruvesel✓ (3)

40

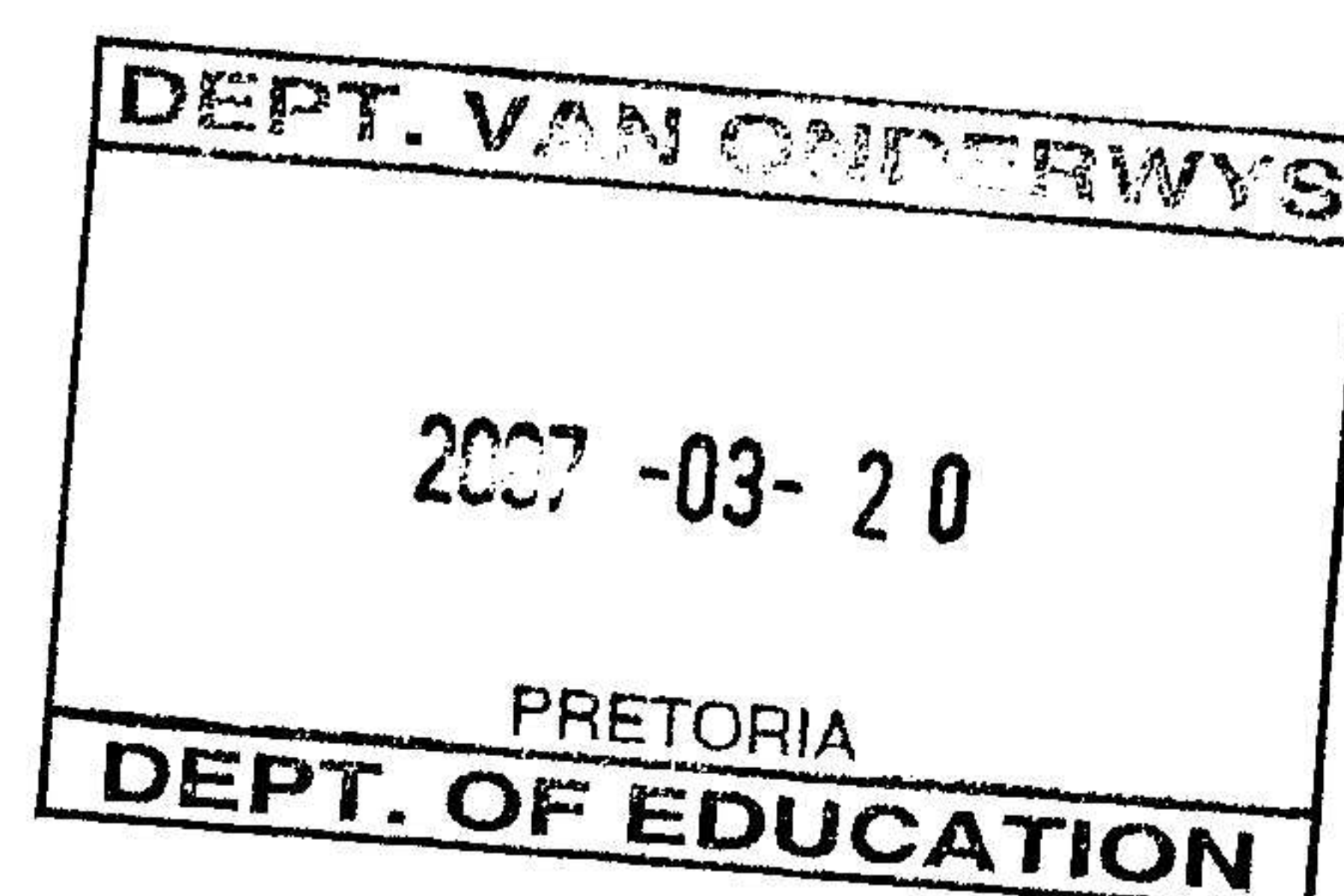
VRAAG 3 : DIEREREPRODUKSIE

- 3.1 Voortplantingsorgane van die koei
- 3.1.1 A Primêre spermatosiet (2n)✓ (1)
- B Sekondêre spermatosiet (n)✓ (1)
- C Tweede meïotiese deling✓ (1)
- D Spermatied (n)✓ (1)
- E Sperm✓ (1)
- 3.1.2 Wande van die seminale buisies✓ (1)

Kopiereg voorbehou



- 3.1.3 bybal / epididymis✓ (1)
- 3.1.4 Nie raseg nie / die nageslag sal nie oorkomste toon met die ouers nie✓ ✓ (2)
- 3.2 Kunsmatige inseminasie:
- 3.2.1 Voorkom siektes wat tydens paring oorgedra word✓
Beperk die voorkoms van seksueel oordraagbare siektes✓
Vinnige genetiese verbetering van die kudde✓
Mees ekonomiese teelmetode✓
semen van verskillende bulle kan gebruik word✓
toename in die kommersiële waarde van kudde✓
hoër kalfpersentasie✓
semen van oorsese bulle kan gebruik word✓
saad kan vir verskeie jare gevries word✓
akkurate metode van nageslagtoetsing is moontlik✓ (Enige 5) (5)
- 3.2.2 ondeursigtig✓
melkerig✓
klewerig✓
slymerig✓
80% beweeglik✓
85% lewendig✓
minder as 20% abnormale sperme✓ (Enige 4) (4)
- 3.3 Teelmetodes:
- 3.3.1 Cc✓ ✓ (2)
- 3.3.2 Goeie konformasie / goeie uiterlike voorkoms✓ ✓ (2)
- 3.3.3 Opgradering✓ ✓ (2)



- 3.3.4 Mees ekonomiese metode om 'n kudde te verbeter✓
Benodig geen gespesialiseerde kennis nie✓
Die moontlikheid vir tekorkomings in die nageslag is klein✓
Nuwe ras word geleidelik in 'n nuwe omgewing ingebring✓
Min aanpassingsprobleme✓ (Enige 4) (4)

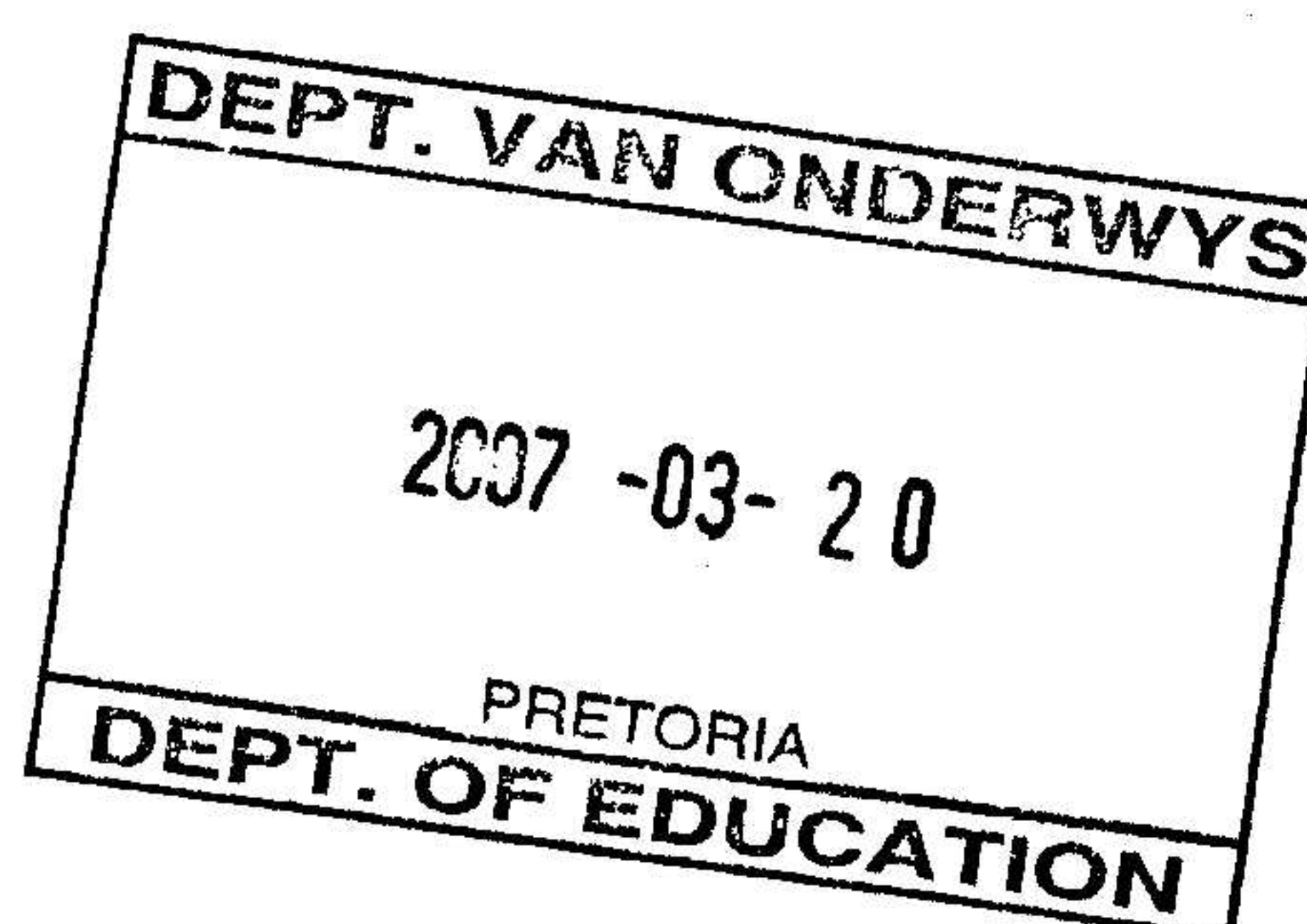
3.4 Kalwing en melkproduksie:

- 3.4.1 Verlies aan eetlus✓
Isoleer haarself van die res van kudde✓
Soek 'n spesiale plekkie - gedrag✓
rusteloos✓
tekens van ongemak✓
urineer en mis dikwels✓
lekkende melk✓
slymstringe sigbaar✓ (Enige 5) (5)

- 3.4.2 Aan die gang gesit deur stimulerings van sensoriese senuwees in die spene✓
Waar spene gehanteer word, uier gewas word, die melkproses, bekende geluide by melkstal✓
Die hormoon oksitosien word vrygestel vanaf die pituêre klier tydens die proses✓
In die bloedstroom vervoer na die uier✓
Stimuleer die myo-epiteel selle en melk word in die uierkanale ingestoot✓
Van daar tot in die speenkanale✓
Skok of opgewondenheid lei tot die vrystelling van adrenalien wat die melkvrystelling inhibeer✓ (Enige 5) (5)

- 3.4.3 Die voedingstowwe van die voer word gebruik vir beide melkproduksie✓
en die groei van die fetus✓ (2)

40



VRAAG 4 :OPTIMALE HULPBRONBENUTTING

4.1 Grondbewerking:

	Skoonbewerking	Deklaagbewerking
4.1.1 Deurlugting	Swaar implimente veroorsaak kompaktering /ploegbank✓ Makroporieë word vernietig✓ (Enige 1)	Baie goeie deurlugting omdat daar geen kompaktering plaasvind nie✓ Makroporieë word nie vernietig nie✓ (Enige 1)
4.1.2 Kompaksie	Gekompakteerde laag /ploegbank ✓ weens swaar werktuie✓ (Enige 1)	Baie min of geen kompaktering✓ Min druk of smeringseffek✓ (Enige 1)
4.1.3 Grondstruktuure	Verswak ✓ Verpoeiering van grond✓ Vernietiging van grondstruktuur✓ (Enige 1)	Verbeter✓

(2)

(2)

(2)

4.2

Help om plaes en siektes te beheer✓

Help om organiese fraksie in die grond te handhaaf✓

Voorkom die eensydige benutting van voedingstowwe uit die grond✓

Voorkom die logging van voedingstowwe✓

beter arbeidsverspreiding✓

twee of meer gewasse kan verbou word✓

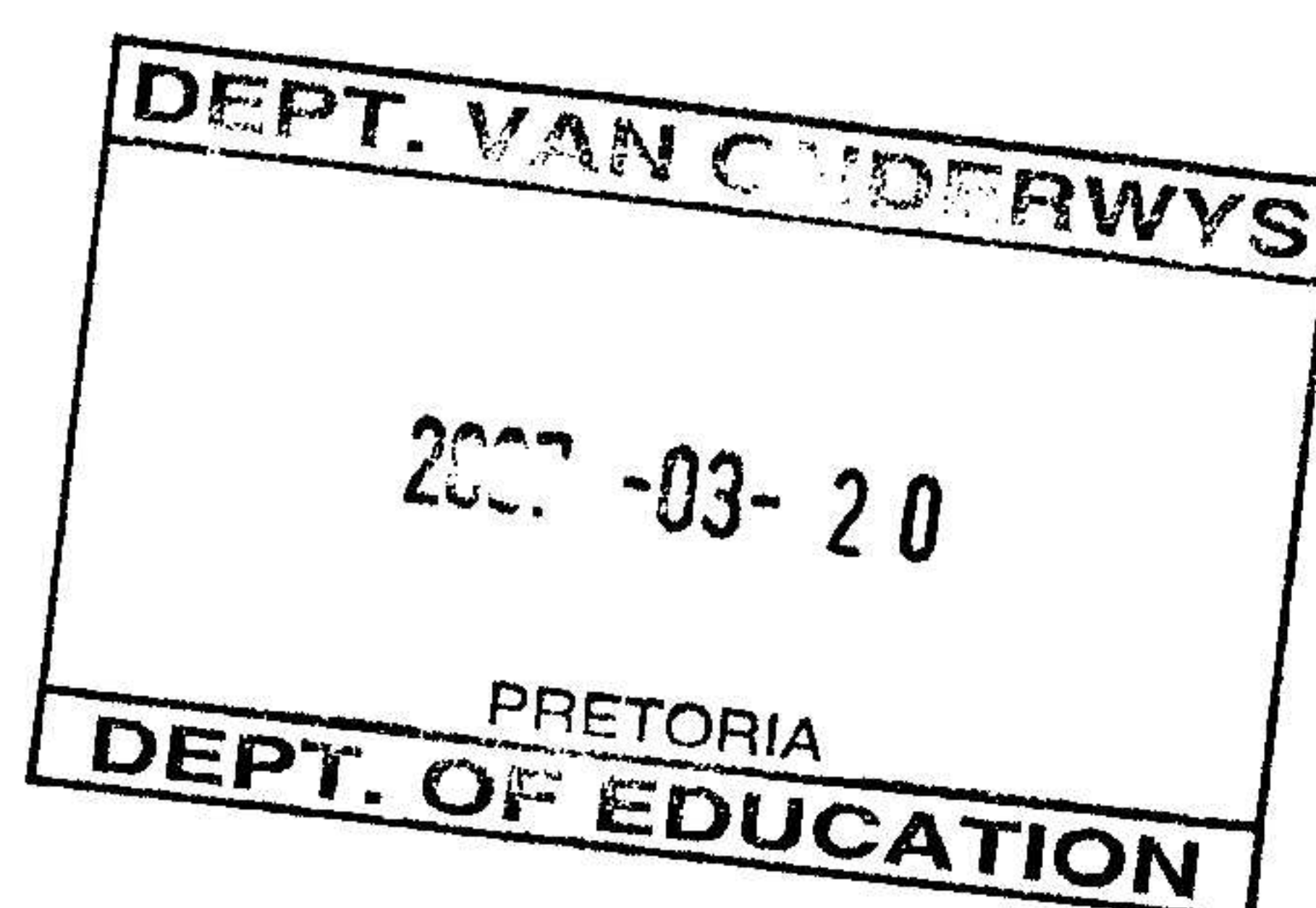
risiko van gewasverliese word versprei✓

dit verminder die afperiodes op die plaas✓

verbeter grondbewaringspraktyke✓

(Enige 5)

(5)



4.3 Veldtipes en bestuur:

4.3.1 Suurveld

die grasse is smaaklik en voedsaam vir diere as die plante jonk is✓
maar verloor sy smaaklikheid en voedingswaarde as dit uitgegroeï is✓

(2)

Soetveld

Die grasse is smaaklik en voedsaam vir diere✓

Gedurende die hele groeiperiode van die grasse✓

(2)

4.3.2 Selektiewe beweiding

Diere benut slegs die smaaklik grasspesies✓

Wat lei tot die oorbeweiding van die bepaalde grasspesie✓

(2)

Geen beweiding

Diere word aangehou op 'n plek en hooi gevoer wat van weiveld gesny is✓

Geen beweiding vind dus plaas nie✓

(2)

4.4. Veldbestuur:

4.4.1 Aantal kampe:

hoe meer kampe beskikbaar✓

Hoe langer sal die periode wees✓

(2)

4.4.2 Toestand van die veld:

hoe meer vertrap die veld / oorbeweï / swaar beweï ✓

Hoe langer die rusperiode✓

(2)

4.4.3 Reënval:

hoe meer die reënval✓

Hoe korter die rusperiode✓

(2)

4.5 diepte van die verskillende horisonte✓

grondkleur✓

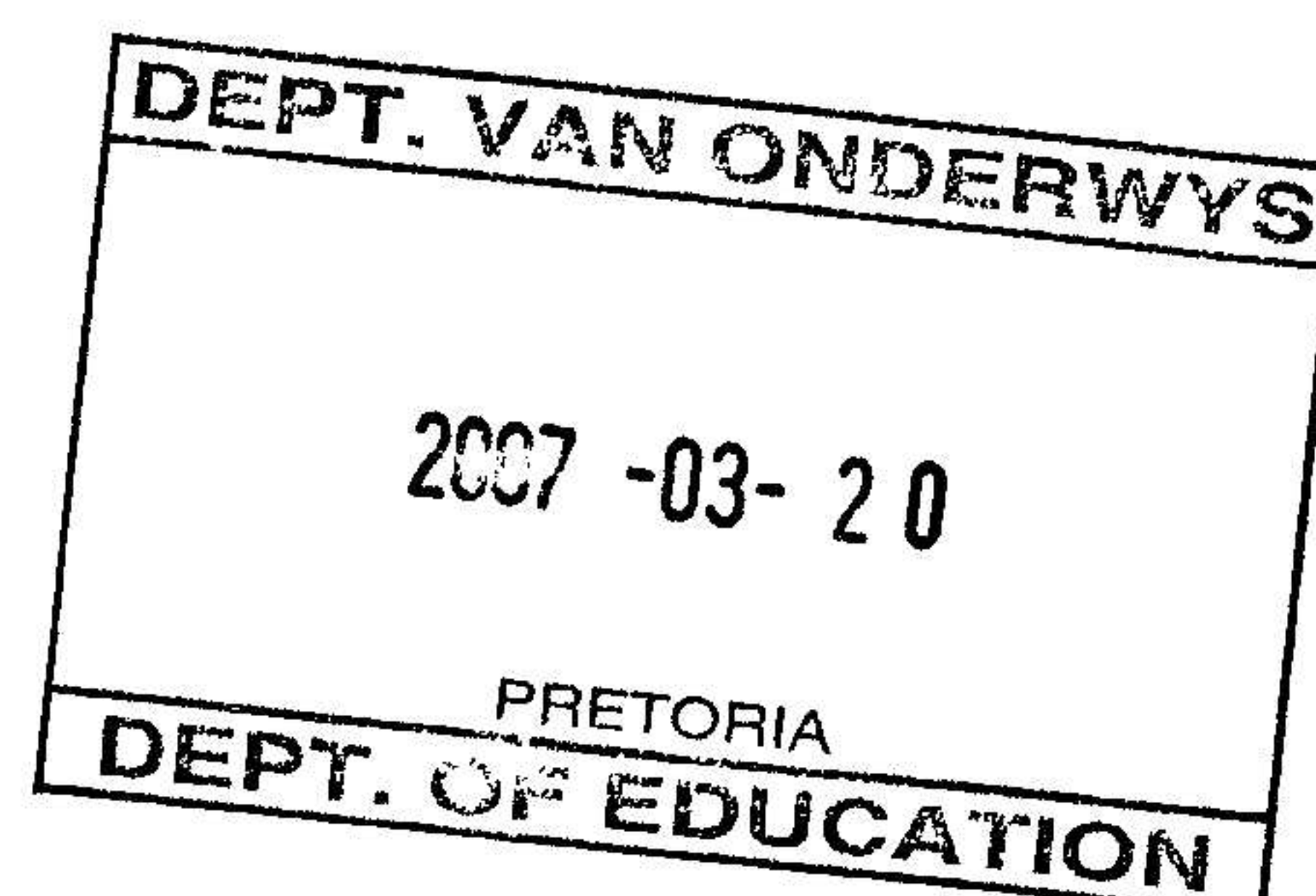
vlekke✓

grondtekstuur✓

grondstruktuur✓

konkresies✓

konsistensie✓

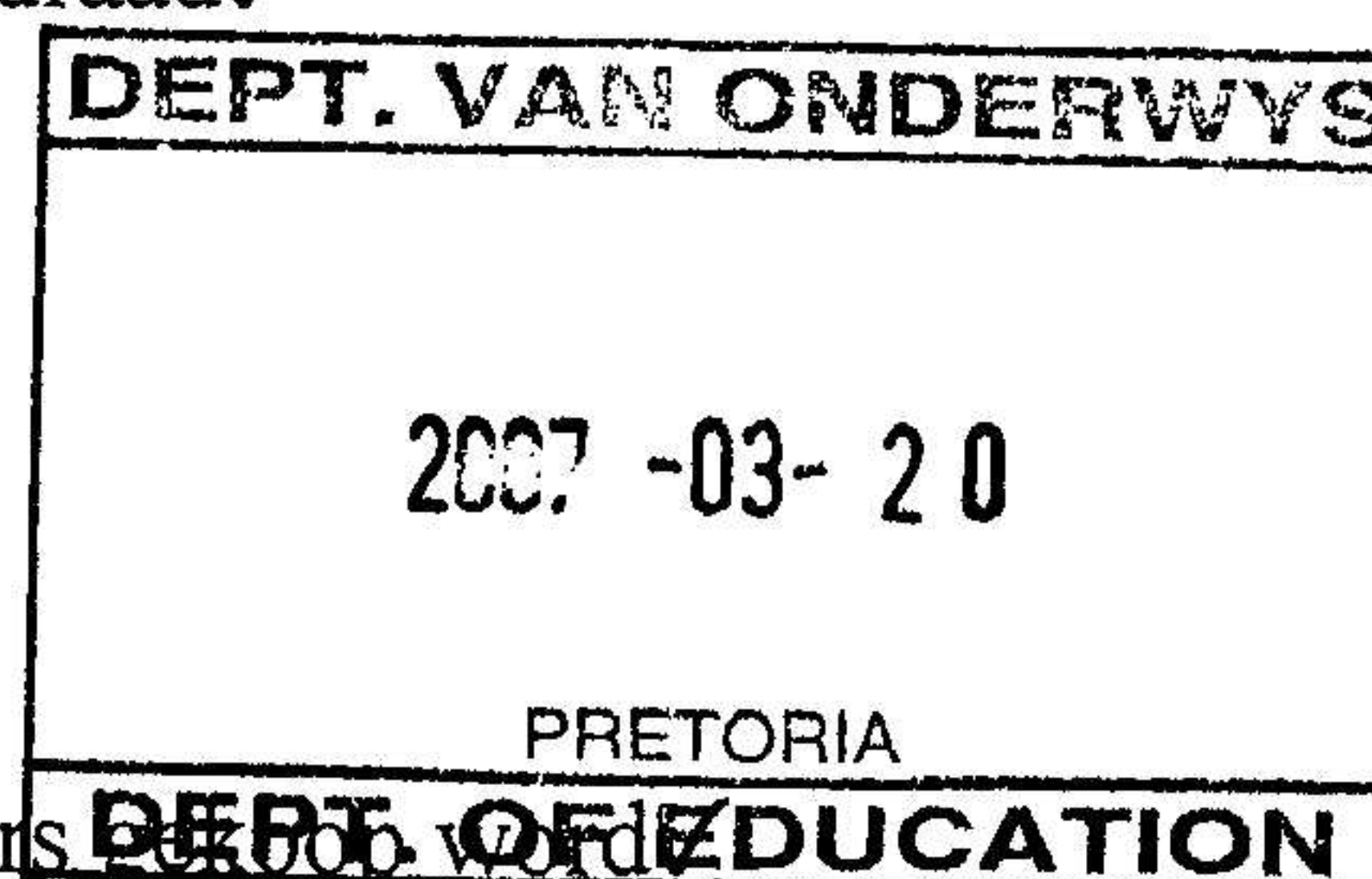


(Enige 5) (5)

- 4.6 Op hoogs deurdringbare grond✓
Op vlak grond met 'n lae waterkapasiteit✓
Op grond waar die univorme toediening van water noodsaaklik is✓
Op steil hellings waar erosie 'n wesenlike gevaar is✓
Waar die watertoevoer te klein is vir vloedbesproeiing✓
Op grond met verskille in tempo van infiltrasie ✓
Op ongelyk grond✓ (Enige 5) (5)
- [35]**

VRAAG 5 : LANDBOU-EKONOMIE

- 5.1 Gevallestudie
- 5.1.1 Verskaf landboubehoeftes teen afslagpryse / goedkoop pryse✓
Verskaf sekere dienste bv. ploeg en spuit van boorde✓
verskaf landbouversekering ✓
verskaf die verkope van produkte op die mees winsgewende manier✓
produkte word gestandaardiseer en gegradeer✓
weens die massahantering word die bemarkingskoste per eenheid
verminder✓ (Enige 5) (5)
- 5.1.2 (a) aangestel tydens die piek periodes✓
vir take wat periodiek herhaal word✓
bv. vrugteoes✓ (3)
- (b) aangestel op 'n tydelike basis✓
vir eenmalige taak✓
bv. Die oprigting van veiligheidsdraad✓ (3)
- 5.2 Vraag en aanbod:
- 5.2.1 Vraag verwys na:
Hoeveelheid van die produk✓
Wat op enige gegewe tyd deur verbruikers gekoop word
Teen alle moontlike alternatiewe pryse✓ (3)



Aanbod verwys na:

Die hoeveelheid van 'n produk✓

Geproduseer of aangebied aan die koper✓

Teen variërende pryse✓

(3)

5.2.2

Prys van die produk✓

Smake en voorkeure van die verbruikers✓

Getal verbruikers✓

Reële inkomste van verbruikers✓

Pryse van compiterende en komplimenterende produkte✓

Reeks produkte beskikbaar vir die verbruiker✓

Bruikbaarheid van die produk✓

(Enige 5)

(5)

5.2.3

water voorsiening / besproeiing✓

konsolidering van onekonomiese boerdery eenhede✓

aanpassing van produksiesisteme tot wetenskaplike metodes✓

(3)

5.3

Grond as 'n produksiefaktor:

5.3.1

opbrengs/produksie verhoog per produksiefaktor toegevoeg✓

tot by 'n maksimum potensiaal vir die grond✓

waarna ekstra insette nie die opbrengs sal verhoog nie✓

(Enige 2)

(2)

5.3.2

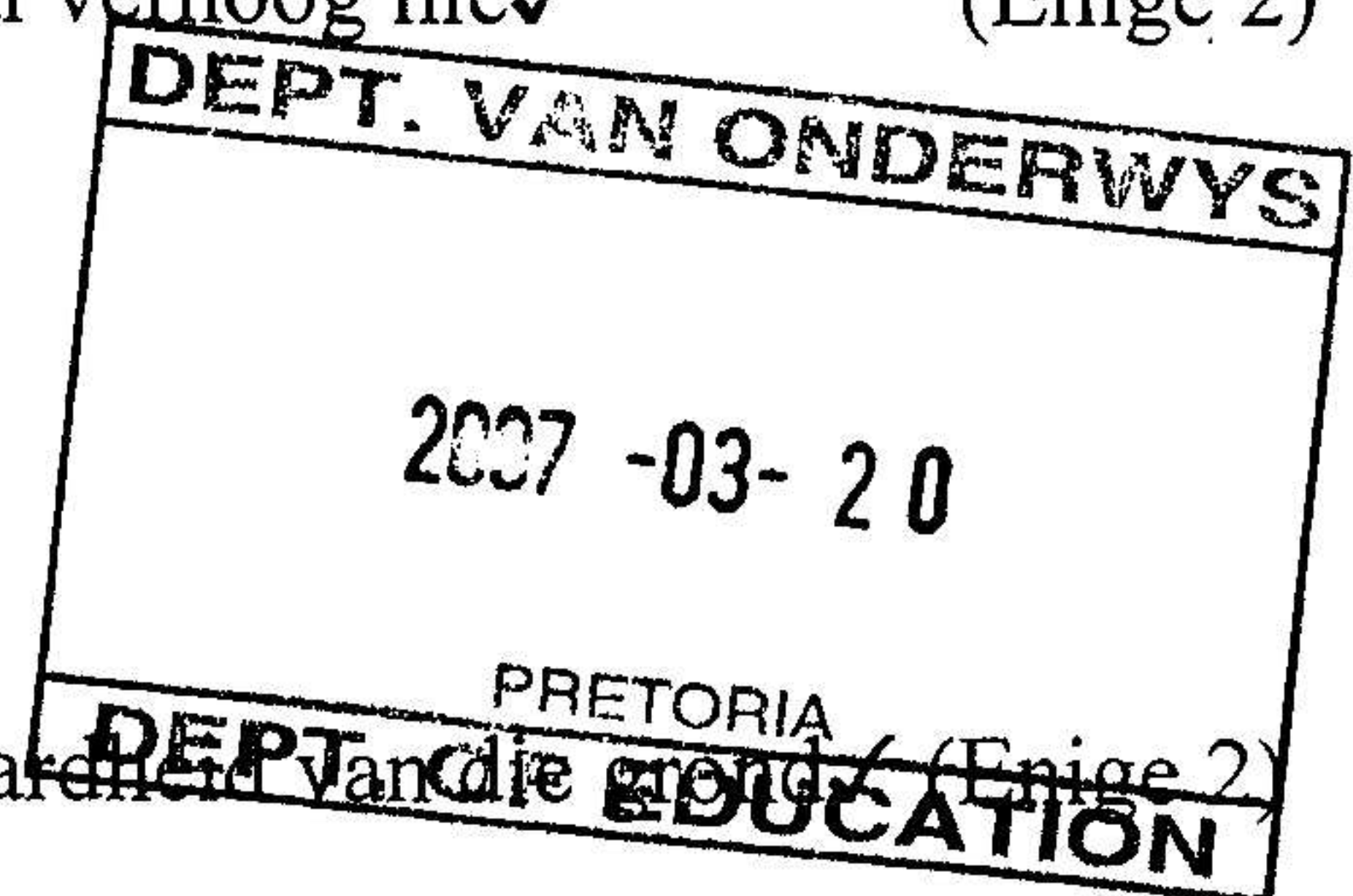
diepte✓

tekstuur✓

en helling kan nie verander word nie✓

gewasse moet aangepas word by die geaardheid van die grond✓ (Enige 2)

(2)



5.4

Plaaswins:

5.4.1

Verskaf opleidingsfasiliteite op die plaas✓

Reël vir vaardigheidsopleidings/vaardigheidsprogramme vir die werkers✓

Verskaf spesialisering van vaardighede✓

(Enige 2)

(2)

5.4.2

Verskaf behoorlike bestuur en toesig✓

Erken en beloon werkers vir uitstaande werk verrig✓

(2)

- 5.4.3 Verbeter die werkstoestande op die plaas✓
 Verminder die lang werksure na 'n aanvaarbare standaard✓
 Verskaf goeie betaling vir oortyd / aansporings✓
 Verhoog moderne meganisasie om arbeidsproduktiwiteit te verhoog✓
 Verhoog lone / salarisse✓ (Enige 2) (2)
- [35]

TOTAAL AFDELING B: 150

GROOTTOTAAL : 200

